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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,726

09/08/2003

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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT

PAPER NUMBER

2622

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/656,726	Applicant(s) UTAGAWA, KEN	
	Examiner LUONG T. NGUYEN	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 2-10 and 29 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-28 is/are allowed.
- 6) ☒ Claim(s) 1,13-15,18 and 19 is/are rejected.
- 7) ☒ Claim(s) 11,12,16,17 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species VII, Figure 29, which reads on claims 1, 4-5, 8, 11-20, 25-27, 30-31 in the reply filed on 02/07/2007 is acknowledged.

2. Claims 2-3, 6-7, 9-10, 29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/07/2007.

In addition, claims 4-5, 8 are withdrawn from consideration by the Examiner for the reasons discussed below.

Claim 4 recites the limitation "a wiring pattern of said transport electrodes in the odd number array and a wiring pattern of said transport electrodes in the even number array are shifted so as to eliminate the half phase shift of the pixel blocks and align the pixel blocks in a same phase on said vertical paths," which reads on Figures 15-17. Figures 15-17 are nonelected Species. Therefore, claim 4 and claims 5, 8, which depend on claim 4, are withdrawn from consideration.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 09/08/2003, 11/05/2003 and 02/07/2007 have been considered by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 14, 15, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,982,751) in view of Yamada (US 6,914,633).

Regarding claim 1, Tanaka discloses an imaging device comprising:

a plurality of photosensors (sensor blocks 11, figures 1, 5; column 6, lines 15-23) arranged in matrix on a light-receiving surface of the imaging device, for generating photo signals in accordance with an amount of received light;

a readout section (vertical section 13, figures 1, 5; column 6, lines 15-23; column 9, lines 5-15) for adding up the generated photo signals in each of pixel blocks for external output, the pixel blocks being set on the light-receiving surface, and wherein each of the pixel blocks is constituted of N ($N \geq 2$) photosensors in an array direction of the matrix (column 9, lines 5-15; column 10, lines 34-46).

Tanaka fails to specifically disclose the pixel blocks in an even number array and the pixel blocks in an odd number array are shifted in phase by half a phase in the array direction.

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However, Yamada teaches a solid state image pickup device, in which an odd column is disposed being shifted by about a half pitch from an even column (figure 1, column 5, lines 10-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka by the teaching of Yamada in order to be capable of realizing high pixel integration and improving a transfer performance of each transfer path without degrading the performance of photoelectric conversion elements (column 2, lines 50-54).

Regarding claims 14, 19, Tanaka discloses wherein said readout section selectively has a high-resolution transport mode in which photo signals are transported in each of said photosensors (frame read mode, column 9, lines 5-13).

Regarding claim 15, Tanaka discloses an imaging device comprising:

a plurality of photosensors (sensor blocks 11, figures 1, 5; column 6, lines 15-23) arranged in matrix on a light-receiving surface of the imaging device, for generating photo signals in accordance with an amount of received light;

a readout section (vertical section 13, figures 1, 5; column 6, lines 15-23; column 9, lines 5-15) for adding up the generated photo signals in each of pixel blocks set on the light-receiving surface for external output, and wherein each of the pixel blocks is constituted of N ($N \geq 2$) photosensors in an array direction of the matrix (column 9, lines 5-15; column 10, lines 34-46).

Tanaka fails to specifically disclose the plurality of photosensors arranged in matrix diagonally to horizontal and vertical directions on a light-receiving surface. However, Yamada

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teaches a solid state image pickup device, in which an odd column is disposed being shifted by about a half pitch from an even column; the (figure 1, column 5, lines 10-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka by the teaching of Yamada in order to be capable of realizing high pixel integration and improving a transfer performance of each transfer path without degrading the performance of photoelectric conversion elements (column 2, lines 50-54).

7. Claims 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,982,751) in view of Yamada (US 6,914,633) further in view of Gallagher et al. (US 6,765,611).

Regarding claims 13 and 18, Tanaka and Yamada fail to specifically disclose an optical low pass filter for blurring an optical image projected on the light-receiving surface in a direction substantially perpendicular to the array direction of the matrix. However, Gallagher et al. teaches an optical low pass filter 6, which is placed between lens and image sensing device 10, performs a slight blurring of the imaged light (figure 1, column 4, lines 19-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka and Yamada by the teaching of Gallagher et al. in order to reduce the occurrence of alising (column 4, lines 20-25).

Allowable Subject Matter

8. Claims 20-28, 31 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the prior art of the record fails to show or fairly suggest an imaging device comprising a readout section reading out the generated photo signals, wherein said readout section selectively has a grid imaging mode in which the generated photo signals on the light-receiving surface are sampled in a grid pattern for readout, and a diagonal grid imaging mode in which the generated photo signals on the light-receiving surface are sampled in a diagonal grid pattern for readout.

Claims 21-28 are allowable as being dependent on claim 20.

Regarding claim 31, the prior art of the record fails to show or fairly suggest an imaging device comprising wherein said vertical CCDs have two transport electrodes for each of said photosensors, and every two pairs of the two transport electrodes for the photosensors have electrically crosswise connection to each other, the photosensors being adjacent to each other in a horizontal direction.

9. Claims 11-12, 16-17, 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Iizuka (US 6,686,960) discloses method for driving an imaging device and image pickup device wherein signals corresponding to same color outputs are combined.

Shizukuishi (US 6,717,190) discloses solid-state image pickup device.

Kondo et al. (US 7,110,031) discloses state image pickup apparatus having pixel shift layout.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
04/30/07



LUONG T. NGUYEN
PATENT EXAMINER